



# Huawei Cloud Data Center Network Scalable Interconnection Solution



HUAWEI TECHNOLOGIES CO., LTD.



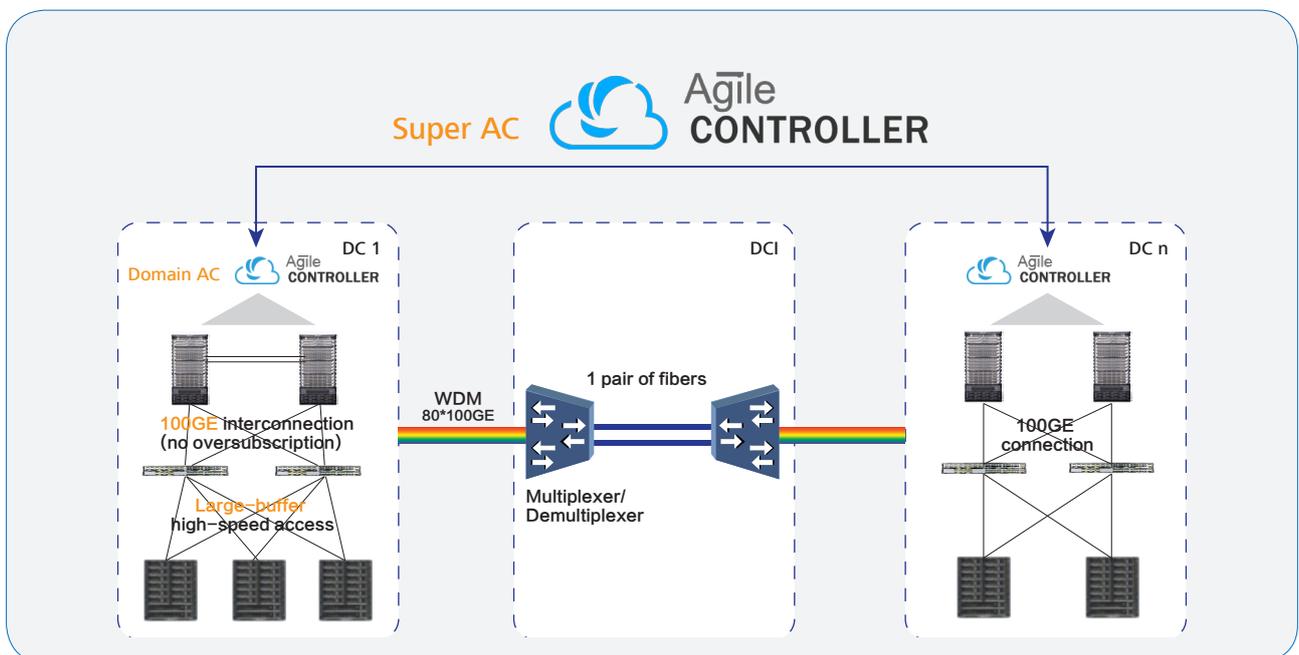


Data center traffic is constantly increasing with the popularity of cloud computing, Big Data, and mobile Internet. As the primary infrastructure of cloud services, data center networks must evolve to support cloud services more flexibly. According to Infonetics, a market research firm, the interface speed of servers will increase from 10G to 25G/50G. To support server upgrade, service providers must upgrade the link speed of their data centers from 10G/40G to 100G.

To accommodate rapidly increasing data and ensure data security, services are typically carried by multiple data centers. Data center interconnection is costly, and managing multiple data centers is a challenge for data center operators. In traditional data centers, physical resources are closely coupled with applications. As a result, service deployment, expansion, and upgrades all require complex operations on physical networks.

## Scalable Interconnection Solution

Huawei's cloud data center scalable interconnection solution is designed to build cloud data center networks that provide high-density access, large buffer capacity, and high bandwidth without oversubscription. The solution provides high-speed interconnections within and between data centers, creating the industry's largest data center networks. Each data center supports high-speed servers numbering in the tens of thousands, and wavelength division multiplexing (WDM) optical transceivers provide up to 80\*100G long-distance interconnection between data centers. Multiple data centers can be managed centrally by a controller federation.

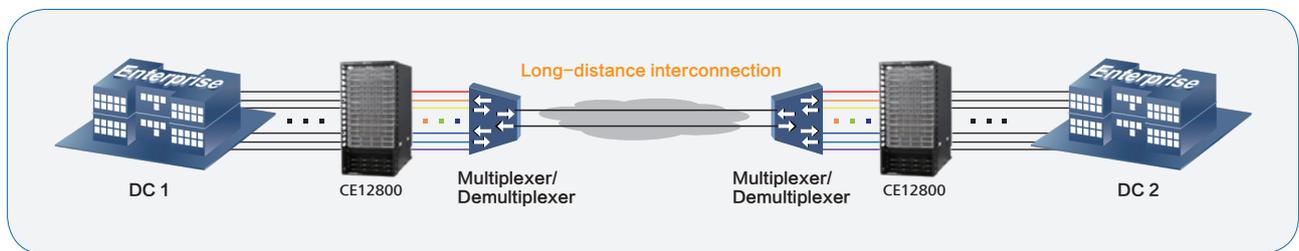


## Interconnection within a data center

The solution increases the link speed in data centers from 10G/40G to 100G to support the evolution of 1G/10G servers to 25G/50G/100G servers. The buffer capacity is also improved from MB to GB level to guarantee high-quality network services. At the core layer of data center networks, Huawei CE12800 supports 36\*100GE line cards, the highest density in the industry. Each 36\*100GE line card provides 24 GB of buffer. At the access layer, CE6860 and CE8800 ToR switches provide flexibly combined 25GE/50GE/100GE ports suited to varying access scenarios. The CE6870 provides 4 GB of buffer, the largest among all ToR switches.

## Data center interconnection (DCI)

The solution supports 100G long-distance DCI. The CE12800 series switches provide large routing tables and extensive WAN features including MPLS VPN. They integrate switch and router functions, reducing equipment costs in data centers. Huawei's long-reach WDM optical transceivers greatly simplify DCI links.



Huawei 100GE WDM optical transceivers support transmission over 80 km and are 80-wave tunable, allowing for wavelength multiplexing. The use of such optical transceivers reduces the number of cables required for DCI by up to 98.8%.

DC-level scaling: The Agile Controller supports a 128-controller federation, the industry's largest. The large controller federation enables DC-level scaling to be performed on demand. The industry-leading controller architecture based on standard protocols enables unified management and collaborative orchestration across multiple data centers. On the forwarding plane, cross-DC resource pools can be created using virtualization technologies such as VXLAN. On the control plane, controllers in multiple data centers use the standard BGP-EVPN protocol to synchronize information. The hierarchical controller architecture supports modular data center deployment and multi-vendor interoperation, improves data center resource utilization, and enables on-demand scaling.

## Summary

The Huawei scalable interconnection solution creates a high-quality network system with high-density, oversubscription-free, and large-buffer network connections. The solution supports elastic scaling of data center networks, uses routing and switching integrated devices, and implements unified management of multiple data centers, reducing the OPEX and protecting investment.

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